IN THE CLAIMS

Please add new claims 42-52. These claims correspond to claims 21-31 as originally filed in U.S. Serial 09/288,943 filed April 9, 1999. These claims were claims corresponding to claims 1-4, 9-12, 17-19, 21, 25 and 26 as originally filed in U.S. Serial No. 08/892,738 filed July 15, 1997. U.S. Serial No. 08/892,738 was a continuation of U. S. Serial No. 08/656,564 filed May 30, 1996. All claims of U.S. Serial No. 08/656,564 were allowed, and then superceded by the claims to substantially the same invention in U.S. Serial No. 08/892,738. Claims 5-8, 13-16, 20, and 22-24 were allowed in U.S. Serial No. 08/892,738 and have issued.

42. A stationary gas turbine engine for a power plant, comprising:

(a) a multistage axial compressor, the compressor having a rotor, the rotor having a cylindrical land region downstream of a last-stage of the compressor, the land region having an outside diameter D;

(b) a turbine shaft-coupled to the rotor of the compressor;

(c) a combustor fluid coupled between the compressor and the turbine;

(d) a stationary inner barrel member downstream of the compressor, air flowing from the compressor to the combustor passing outside of the inner barrel member, a chamber within the inner barrel member forming a main passage and containing a labyrinth seal comprising at least one knife-edge member positioned on the barrel member for controlling air leakage through the labyrinth for cooling air from the compressor, the cooling air flowing from the chamber and being mixed with combustion gases upstream of the turbine; and

(e) a brush seal positioned on the barrel member and upstream from the labyrinth seal for restricting air passage into the chamber from the compressor, the brush seal comprising:

(i) a ring-shaped holder;

(ii) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of

the bristle members being rigidly retained relative to the holder; and

(iii) the holder being fastened to the inner barrel member,

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor and whereby air flow into the compressor is impeded.

43. The engine of Claim 42, further comprising a barrel passage extending through one wall of the inner barrel for passing air therethrough downstream of the brush seal, thereby altering the flow of cooling air from the chamber to be mixed with the combustion gases upstream of the turbine.

44. The engine of Claim 43, further comprising a structure for restricting the barrel passage.

45. The engine of Claim 42, further comprising an insert ring connecting segments of the inner barrel member, the insert ring being located proximate the land region of the rotor, the holder being fastened to the insert ring by a plurality of threaded fasteners.

46. The engine of Claim 45, wherein the brush seal, including the holder thereof is segmented for facilitating assembly with the insert ring.

47. In a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid-coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D, the improvement comprising a brush seal connected to the inner barrel and augmenting the labyrinth seal, being fluid connected in series therewith, the brush seal comprising:

(a) a ring-shaped holder;

(b) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and

(c) the holder being fastened to the inner barrel member,

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

48. A method for controlling cooling air flow in a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid-coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D, comprising the steps of:

(a) providing a brush seal having a ring-shaped holder, a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder;

(b) connecting the brush seal in augmenting relation to the labyrinth seal; and

(c) spacing the bristle members from the land region of the rotor by an ambient temperature clearance of not less than 0.015 percent of the diameter D when the power plant is inactive.

49. The method of Claim 48, wherein the power plant includes an insert ring fastened to the inner barrel member in axially spaced relation to a portion of the rotor member, the method comprising the further steps of:

(a) removing the insert ring from the inner barrel member;

(b) providing an adapter ring;

(c) mounting the brush seal to the adapter ring; and

(d) fastening the adapter ring to the inner barrel member in place of the insert ring.

50. The method of Claim 49, wherein the step of providing the adapter ring comprises the step of modifying the insert ring.

51. The engine of Claim 43, wherein the barrel passage is one of a plurality of barrel passages.

52. A method for generating electrical power comprising the steps of:

(a) providing the improved power plant of Claim 47; and

(b) monitoring an operating parameter of the power plant.